

WHAT IS CLAIMED IS:

1 1. For use in a telecommunications network comprising a
2 plurality of packet data service nodes and a plurality of mobile
3 stations, wherein each packet data service node in said plurality
4 of packet data service nodes is capable of communicating with at
5 least one mobile station, an apparatus for avoiding triangulation
6 delay when a first mobile station sends data packets to a second
7 mobile station, said apparatus comprising:

8 an interface connecting a first packet data service node that
9 serves said first mobile station and a second packet data service
10 node that serves said second mobile station, said interface
11 enabling said first packet data service node to obtain information
12 from said second packet data service node concerning said second
13 mobile station.

1 2. The apparatus as set forth in Claim 1 wherein said
2 interface enables said second packet data service node to send an
3 Internet protocol push message to said first packet data service
4 node.

1 3. The apparatus as set forth in Claim 2 wherein said
2 Internet protocol push message comprises one of: an identification
3 of a base station controller, an identification of a base
4 transceiver station, a mobile Internet protocol address, a Network
5 Interface device, a System Identification Number, and a time stamp.

1 4. The apparatus as set forth in Claim 2 wherein said
2 Internet protocol push message comprises an updated Internet
3 protocol push message that comprises a time stamp and one of: an
4 identification of a new base station controller, an identification
5 of a new base transceiver station, a new mobile Internet protocol
6 address, a new Network Interface Device, and a new System
7 Identification Number.

1 5. The apparatus as set forth in Claim 1 wherein said first
2 packet data service node is capable of avoiding triangulation delay
3 by sending data packets from said first mobile station directly to
4 said second packet data service node for delivery to said second
5 mobile station based on information received from said second
6 mobile packet data service node through said interface.

1 6. The apparatus as set forth in Claim 5 wherein said first
2 packet data service node is capable of avoiding triangulation delay
3 by sending data packets from said first mobile station directly to
4 said second packet data service node for delivery to said second
5 mobile station without sending said data packets through an
6 Internet protocol network.

1 7. The apparatus as set forth in Claim 1 further comprising
2 an interface connecting each packet data service node in said
3 plurality of packet data service nodes with all other packet data
4 service nodes in said plurality of packet data service nodes, said
5 interface enabling said each packet data service node to obtain
6 information from all other packet data service nodes concerning
7 mobile stations served by said packet data service nodes.

1 8. The apparatus as set forth in Claim 7 wherein said
2 interface enables each packet data service node to send an Internet
3 protocol push message to all other packet data service nodes.

1 9. The apparatus as set forth in Claim 8 wherein said
2 Internet protocol push message comprises one of: an identification
3 of a base station controller, an identification of a base
4 transceiver station, a mobile Internet protocol address, a Network
5 Interface device, a System Identification Number, and a time stamp.

1 10. The apparatus as set forth in Claim 8 wherein said
2 Internet protocol push message comprises an updated Internet
3 protocol push message that comprises a time stamp and one of: an
4 identification of a new base station controller, an identification
5 of a new base transceiver station, a new mobile Internet protocol
6 address, a new Network Interface Device, and a new System
7 Identification Number.

1 11. The apparatus as set forth in Claim 7 wherein said
2 apparatus is capable of avoiding triangulation delay when said
3 first mobile station served by said first packet data service node
4 sends data packets to a third mobile station served by said first
5 packet data service node, wherein said first packet data service
6 node is capable of determining from information received through an
7 interface with other packet data service nodes that said first
8 packet data service node is serving said third mobile station.

9 12. The apparatus as set forth in Claim 11 where said first
10 packet data service node sends said data packets from said first
11 mobile station to said third mobile station without sending said
12 data packets through an Internet protocol network.

1 13. For use in a telecommunications network comprising a
2 plurality of packet data service nodes and a plurality of mobile
3 stations, wherein each packet data service node in said plurality
4 of packet data service nodes is capable of communicating with at
5 least one mobile station, an apparatus for avoiding triangulation
6 delay when a first mobile station sends data packets to a second
7 mobile station, said apparatus comprising:

8 a data base coupled to each of said plurality of packet data
9 service nodes, said data base capable of sending data packets from
10 a first packet data server node that serves said first mobile
11 station to a second packet data server node that serves said second
12 mobile station.

13 14. The apparatus as set forth in Claim 13 further comprising
14 an Internet protocol network coupled to said data base.

15 15. The apparatus as set forth in Claim 13 wherein said data
16 base is capable of identifying which packet data service node in
17 said telecommunications network serves said second mobile station.

1 16. The apparatus as set forth in Claim 14 wherein said
2 apparatus is capable of avoiding triangulation delay when said
3 first mobile station served by said first packet data service node
4 sends data packets to said second mobile station that is served by
5 said second packet data service node, wherein said data base is
6 capable of causing said first packet data service node to send said
data packets from said first mobile station to said second mobile
station without sending said data packets through said Internet
protocol network.

1 17. A method for avoiding triangulation delay in a
2 telecommunications network comprising a plurality of packet data
3 service nodes and a plurality of mobile stations, wherein each
4 packet data service node in said plurality of packet data service
5 nodes is capable of communicating with at least one mobile station,
6 and wherein a first mobile station sends data packets to a second
7 mobile station, said method comprising the steps of:

8 coupling an interface to a first packet data service node that
9 serves said first mobile station and to a second packet data
10 service node that serves said second mobile station; and

11 sending information concerning said second mobile station
12 through said interface from said second packet data service node to
13 said first packet data service node.

14 18. The method as set forth in Claim 17 further comprising
15 the step of:

16 sending an Internet protocol push message through said
17 interface from said second packet data service node to said first
18 packet data service node.

1 19. The method as set forth in Claim 18 wherein said Internet
2 protocol push message comprises one of: an identification of a base
3 station controller, an identification of a base transceiver
4 station, a mobile Internet protocol address, a Network Interface
5 device, a System Identification Number, and a time stamp.

1 20. The method as set forth in Claim 18 wherein said Internet
2 protocol push message comprises an updated Internet protocol push
3 message that comprises a time stamp and one of: an identification
4 of a new base station controller, an identification of a new base
5 transceiver station, a new mobile Internet protocol address, a new
6 Network Interface Device, and a new System Identification Number.

1 21. The method as set forth in Claim 17 further comprising
2 the step of:

3 sending data packets from said first packet data service node
4 directly to said second packet data service node for delivery to
5 said second mobile station based on information received from said
6 second mobile packet data service node through said interface.

1 22. The method as set forth in Claim 21 further comprising
2 the step of:

3 sending said data packets from said first packet data service
4 node directly to said second packet data service node for delivery
5 to said second mobile station without sending said data packets
6 through an Internet protocol network.

1 23. The method as set forth in Claim 17 further comprising
2 the steps of:

3 coupling an interface to each packet data service node in said
4 plurality of packet data service nodes with all other packet data
5 service nodes in said plurality of packet data service nodes;

6 enabling each packet data service node to obtain information
7 from all other packet data service nodes concerning mobile stations
8 served by said packet data service nodes.

1 24. The method as set forth in Claim 23 further comprising
2 the step of:

3 enabling each packet data service node to send an Internet
4 protocol push message to all other packet data server nodes.

1 25. The method as set forth in Claim 24 wherein said Internet
2 protocol push message comprises one of: an identification of a base
3 station controller, an identification of a base transceiver
4 station, a mobile Internet protocol address, a Network Interface
5 device, a System Identification Number, and a time stamp.

1 26. The method as set forth in Claim 24 wherein said Internet
2 protocol push message comprises an updated Internet protocol push
3 message that comprises a time stamp and one of: an identification
4 of a new base station controller, an identification of a new base
5 transceiver station, a new mobile Internet protocol address, a new
6 Network Interface Device, and a new System Identification Number.

1 27. The method as set forth in Claim 23 further comprising
2 the steps of:

3 determining in said first packet data service node from
4 information received through said interface with other packet data
5 service nodes that said first packet data service node serves a
6 third mobile station as well as said first mobile station; and

7 sending data packets from said first mobile station that is
8 served by said first packet data service node to said third mobile
9 station that is served by said first packet data service node.

10 28. The method as set forth in Claim 27 further comprising
11 the step of:

12 sending said data packets from said first mobile station to
13 said third mobile station without sending said data packets through
14 an Internet protocol network.
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